

CLAIMS

1. A method for producing a compound semiconductor wafer used for production of HBT by vapor growth of a sub-collector layer, a collector layer, a base layer and an emitter layer in this order on a compound semiconductor substrate using MOCVD method wherein the base layer is a p-type compound semiconductor thin film layer containing at least one of Ga, Al and In as a Group III element and As as a Group V element and is grown under such conditions that the growth rate gives a growth determined by a Group V gas flow rate-feed.
2. A method according to claim 1, wherein the base layer is grown with the V/III ratio being within the range of 0.3-1.0.
3. A method according to claim 1 or 2, wherein the adjustment of carrier concentration in the base layer is controlled by the flow rate of methane halide.
4. A method according to claim 1 or 2, wherein the adjustment of carrier concentration in the base layer is controlled by the flow rate of CBrCl_3 .
5. A compound semiconductor device comprising a sub-collector layer, a collector layer, a base layer and an emitter layer formed as thin film crystal layers in this turn on a compound semiconductor substrate by vapor growth wherein the life time of minority carriers in the base layer is not less than 200 psec.
6. A compound semiconductor device containing a

hetero junction bi-polar transistor comprising a sub-collector layer, a collector layer, a base layer and an emitter layer formed as thin film crystal layers in this turn on a compound semiconductor substrate by vapor growth wherein the ratio of current gain/base sheet resistance of the hetero junction bi-polar transistor is not less than 0.60.